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ABSTRACT

This paper examines some of the critical needs in early childhood education and suggests ways in which the National Laboratory on Early Childhood Education can contribute to filling those needs. The age, race, socioeconomic status and residence of children enrolled in preschool programs nationwide are examined, and it is concluded that many more children, particularly the disadvantaged, are in need of such programs. The role of state and federal governments in supplying day care and early education is explored. Persistent problems reviewed include inadequate knowledge of processes underlying development, poor program definition and specification, inadequate staff training, lack of appropriate objectives, inadequate evaluation and instrumentation and lack of federal support. It is posited that the Laboratory must have a direct impact on practice by developing and demonstrating sound comprehensive early childhood educational models based on an understanding of the underlying processes of early development. Presented is a proposal for the functional and administrative organization of the Laboratory to achieve this goal. Major functions outlined include research; program planning and evaluation; program development, demonstration and installation; and resource production. (Author/SB)

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THE NATIONAL LABORATORY--
A CRITICAL PERIOD OF INITIATIVE

James O. Miller

Those who were instrumental in the creation of the National Laboratory on Early Childhood Education, many of whom are still actively participating in its development, as well as those who have joined the effort, envision the Laboratory's work and programs as a potent force and focal point for the field of early childhood. In its short life, the Laboratory, through its program of research and development, has made singular contributions to the field. Through the leadership of its member investigators, it has served ever increasing demands for information, advice and council from professionals in the field. Despite obstacles and impediments, the Laboratory has moved toward fulfilling the potential its founders conceived it to have.

Today the Laboratory is in a critical period of initiative. It stands on the threshold of decision. The nature and direction of these decisions will profoundly affect the Laboratory's impact on the field of early childhood education as well as its own potential. If the Laboratory is to address the critical needs of the field as they have emerged over the past several years and occupy the position of leadership envisioned for it, it must take the initiative.

This paper will examine some of the critical needs in the field of early childhood education and advocate the leadership role and constructive means by which the Laboratory can contribute to filling those needs. In essence, it holds the Laboratory must assume a posture of active advocacy based upon sound knowledge and tested practice. It further asserts that it must have a direct impact on practice by developing and demonstrating sound comprehensive early childhood educational models based on an understanding of the underlying processes of early development. This paper maintains that the appropriate source of support is the federal government for a program national in scope. Finally, it advocates that only an integrated and comprehensive program is defensible given the needs which society has in the field of early childhood education.

Rapid Development and Its Consequences

Gathering Momentum

The year 1965 must stand as a landmark year in early childhood education. The administration's investment in the war on poverty created Head Start. Head Start was a singular commitment to young children at the federal level. While there had been other federally sponsored programs for day care, they had not been directed toward serving the needs of young children per se, but were instituted to provide child care for women employed in critical war and defense industries during the 40's. Support for preprimary education had come mainly from middle class and upper middle class parents concerned with developing social and group experiences for their children. Other private programs existed providing day care for children of working mothers. A number of universities had nursery school facilities associated with minor training programs. These facilities also served the research interests of professionals concerned with child development during the early years. It is fair to say that no national commitment nor universal interest in the field was evident prior to 1965.

Several converging forces of the post war society provided the impetus which led to the momentus decision to support early childhood education programs for disadvantaged children. (1) Mounting research evidence pointed to the importance of the child's early years as a critical

learning and socialization period. The nature of early experience and the environmental conditions supporting the child's developing competence were considered crucial to later environmental mastery (Hunt, 1961; Bloom, 1964). (2) The discovery of Piaget as a developmental theorist by American professionals, the emerging interest of the neobehaviorists in educational technology, and the exciting potential of von Bertalanffy's systems theory for developmental applications were several supporting movements which gave theoretical and practical impetus to early child development and education. (3) Society's social and political conscience, aroused by the Civil Rights upheaval, saw in early childhood education the promising means of doing battle in the war on poverty. Equality of educational opportunity was a hollow victory indeed for the individual, if doors were closed to him because environmental circumstances had failed to provide the necessary support to insure educational success. (4) Rapid technological advance during and following the war demanded highly developed abstracting and symbolic abilities on the part of the work force. These abilities were lacking in a significant segment of the population. At the same time, increased agricultural automation shrank labor opportunities for the unskilled and semiskilled. Technological displacement was on the increase and the critical need existed to provide well planned educational programs which could develop the individual skills necessary to compete in a highly technical society. It has been estimated that our present educational systems

are inadequate for approximately 25 per cent of the total population. Early education was seen as a promising means to provide the foundation necessary for formal school success. These major forces set the stage for public acceptance and national investment in early childhood education for the disadvantaged.

The national response in interest and support to these forces is an exciting part of the record of the 1960's. The response to Head Start and its spin-off programs, Follow Through and the experimental Parent and Child Centers, has been an exciting confirmation of the public's faith in education as a means to preserve society and encourage individual betterment. It reconfirmed society's commitment to the individual and especially the nation's youth.

The Impact

In 1964 it was estimated that 25.5 per cent of the three- to five-year-old population was enrolled in prekindergarten and kindergarten educational programs (Table 1). Two short years later, by contrast, the enrollment reached 31.6 per cent of this age group. Since the number of children in the population between three and five years has remained relatively stable over this period of time, somewhat in excess of 12 million, such a percentage increase represents approximately 700,000 children newly enrolled in preprimary educational programs. Over half of this numerical increase,

Table 1

Percentage Distribution of October Enrollment of 3-5-Year-Old Children by Family Income Group for the United States: 1964, 1965, 1966, and 1967

Income Group and Year	Percentage
Under $3,000:	
1967	21.2
1966	19.3
1965	14.4
1964	15.1
$3,000 to $4,999:	
1967	26.0
1966	21.3
1965	21.0
1964	19.8
$5,000 to $7,999:	
1967	29.0
1966	29.0
1965	26.3
1964	25.8
$7,500 and over:	
1967	38.5
1966	37.8
1965	37.4
1964	37.2

Adapted from "Preprimary Enrollment of Children Under Six," October, 1967 published by Office of Education, U.S. Department of Health, Education, and Welfare. OE-20113.

400,000, has been attributed to Head Start and programs for the disadvantaged supported under the Elementary and Secondary Education Act. The rest is due to nontargeted federally sponsored programs and other publicly and privately supported endeavors.

Table 1 clearly indicates where the impact of these programs has been. While an increase in enrollment can be seen across all income groups, by far the greatest increase has occurred at the two lower income levels, a little over 6 per cent in each category. Clearly, the targeted programs had dramatic effect. However, the affluent enroll a far greater proportion of their children in preprimary programs than do any of the other three categories. The range is from a minimum of 10 per cent to a maximum of 20 per cent greater enrollment. Obviously, we are not yet reaching a significant proportion of those most in need of preprimary educational programs. In fact, to bring the enrollment of the least served to the level of the most affluent would add in excess of 800,000 children to preprimary educational programs. Such an increase would match the growth over the two years represented but stands as a poor rationale for determination of need. It simply would bring the level of use to that of the most affluent economic groups, those whose family income is in excess of $7,500 per year, a sophisticated "keeping up with the Jonses" strategy.

Of the 25 million preschool children (0 to 6 years) in the United States, a little over 12 million are in the preprimary age bracket (3-, 4-,

5-year-olds). The greatest percentage are enrolled at the kindergarten level, where state aid is available in 29 states. At the present time, approximately 225,000 children, or 30 per cent of the population, are served in licensed day care facilities. Of the 70 per cent which are served by publicly supported programs, 66 per cent are at the kindergarten level, with public support going to only 5 per cent of those enrolled who are three years of age and under. Only California provides comprehensive state aid for day care. Federal legislation passed and pending will significantly increase the amount of public support for day care services in the future, however.

The highest impact area for the federally sponsored programs has been in the larger metropolitan areas (Table 2). The rural areas have been served much less than have the more densely populated urban and suburban areas. Nonwhite enrollment is greater than that of the white group in general and must be accounted for by federally sponsored programs at the four-year-old level since at both the three-year-old and five-year-old levels, white enrollment exceeds that of nonwhite. Table 3 summarizes enrollment by income, occupation, residence, and region. The level of public support for kindergarten is higher than for prekindergarten, which serves mainly three- and four-year-olds.

Enrollment of children in white collar families greatly exceeds that of children in manual or service workers families. This undoubtedly

Table 2

Number of 3-, 4-, and 5-Year-Old Children in the Population and Number and Per Cent Enrolled in Preprimary Programs, by Residence, Age, and Color: United States, October, 1967
(Numbers in thousands)

Age and Color of Children	SMSA* Central Cities			SMSA* Outside Central Cities			Non-SMSA*		
		Enrolled in Preprimary Programs			Enrolled in Preprimary Programs			Enrolled in Preprimary Programs	
	Population	Number	Per Cent	Population	Number	Per Cent	Population	Number	Per Cent
Total, 3-5 years old	3,348	1,227	36.6	4,342	1,542	35.5	4,548	1,098	24.1
White	2,343	855	36.5	4,029	1,422	35.3	3,910	990	25.3
Nonwhite	1,005	372	37.0	313	120	38.3	638	108	16.9
Total, 3 years old	1,069	96	9.0	1,427	110	7.7	1,497	68	4.5
White	749	68	9.1	1,317	95	7.2	1,279	54	4.2
Nonwhite	320	28	8.8	110	15	13.6	218	14	6.4
Total, 4 years old	1,131	303	26.8	1,459	383	26.3	1,496	185	12.4
White	789	195	24.7	1,356	340	25.1	1,288	153	11.9
Nonwhite	342	108	31.6	103	43	41.7	208	32	15.4
Total, 5 years old	1,148	828	72.1	1,456	1,049	72.0	1,555	843	54.2
White	806	593	73.6	1,356	987	72.8	1,342	781	58.2
Nonwhite	342	235	68.7	100	62	62.0	213	62	29.1

Note: Excluded from the enrollment data in this table are 444,000 5-year-olds in programs above the kindergarten level. Also excluded are the population and the preprimary enrollment (157,000) of 6-year-olds.

* SMSA = Standard Metropolitan Statistical Area

Table 3

Summary of Characteristics of 3-, 4-, and 5-Year-Old Children Enrolled in Prekindergarten and Kindergarten Programs: United States, October 1967
(Numbers in thousands)

Characteristics	Total Population	Total Enrolled in Preprimary Programs		Enrolled in Prekindergarten Programs		Enrolled in Kindergarten Programs	
		Number	Percent	Number	Percent	Number	Percent
Total	12,242	3,869	31.6	712	5.8	3,157	25.8
White	10,283	3,267	31.8	563	5.5	2,704	26.3
Nonwhite	1,959	601	30.7	149	7.6	452	23.1
Family income[1/]							
Under $3,000	1,333	282	21.2	46	3.5	236	17.7
$3,000 to $4,999	1,973	513	26.0	99	5.0	414	21.0
$5,000 to $7,499	3,439	997	29.0	140	4.1	857	24.9
$7,500 to $9,999	2,358	780	33.1	127	5.4	653	27.7
$10,000 and over	2,269	1,002	44.2	243	10.7	759	33.5
Occupation of family head[2/]							
White collar	4,178	1,652	39.5	395	9.5	1,257	30.1
Manual or service	6,085	1,687	27.7	236	3.9	1,451	23.8
Farm	540	101	18.7	12	2.2	89	16.5
Unemployed or not in labor force	1,097	304	27.7	47	4.3	257	23.4
Residence							
SMSA-Central Cities	3,348	1,227	36.6	274	8.2	953	28.5
SMSA-Outside central Cities	4,342	1,542	35.5	289	6.7	1,253	28.9
Outside SMSA's	4,548	1,098	24.1	149	3.3	949	20.9
Region							
Northeast	(3)	(3)	34.6	(3)	6.2	(3)	28.4
North Central	(3)	(3)	34.0	(3)	5.1	(3)	28.8
South	(3)	(3)	23.3	(3)	5.0	(3)	18.3
West	(3)	(3)	38.4	(3)	7.8	(3)	30.6

Note: Excluded from the enrollment data in this table are 444,000 5-year-olds in programs above the kindergarten level. Also excluded are the population and the primary enrollment (157,000) of 6-year-olds.

1/ Excludes children with family income not reported.
2/ Excludes children with occupation of household head not reported.
3/ No figures shown, since regional data are not controlled by independent population estimates.

reflects both a higher motivation for educational services and the wherewithal to pay for them. The level of enrollment of children of the unemployed is similar to that of the manual or service workers children. Referrals by welfare agencies are probably instrumental in bringing this about.

Enrollment in rural areas in the southern region of the United States is much less. The South lags behind by approximately 10 per cent. If migration from the rural South to the inner cities continues, the need for preprimary education will undoubtedly increase in the metropolitan areas.

In the aggregate, the foregoing demonstrates vividly the accelerated growth in the field of early childhood education from 1965 to 1967. While growth during the two intervening years since data have been available for study has probably not shown the rapid increases of the previous two years, it appears safe to assert that growth has continued. Certainly the problems we face are much clearer than they were in 1965. However, the trend is toward expansion in the field which will only attenuate these problems.

Some Troubling Signals

The Children's Bureau estimates that approximately 38,000 children are left totally uncared for while their mothers work and that double that number are looked after by other children under the age of 16. It is estimated 1,050,000 disadvantaged children from birth to six years of age need

full day care. Presently there are only 110,000 places in day care programs for these children. Of the 12 million children in the three through five year age bracket, approximately 4 million come from disadvantaged environments. As pointed out above, only 400,000 or 10 per cent of the children from this group are presently being served.

These facts are influencing pending legislation and policy. At the federal level, enabling legislation is before Congress to allow collective bargaining to include provision for day care for the children of employees. The administration has committed itself to doubling the parent and child center experimental program. Recently passed amendments to the Social Security Act make provisions for day care of children receiving aid under AFDC.

Other developments on the federal and state levels underscore the future demands and strains which will be put upon the field. The Federal Panel on Early Childhood Education recently issued its Federal Interagency Day Care Requirements. These program standards and regulations are applicable to all programs supported wholly or in part by federal funds.

Of particular significance are the mandatory provisions requiring educational opportunities to be provided for every child in federally sponsored programs. The educational activities must be under the supervision of a person trained in child growth and development. Our lagging training

capabilities will be strained to the utmost to provide preservice instruction and experiences to fill this need alone.

Further, the program must contain activities designed to influence "a positive concept of self and motivation to enhance his social cognitive and communication skills." This underscores the need to develop early childhood educational models appropriate for application under a variety of conditions.

The mandatory provisions also require appropriate materials and equipment to implement the program. Socially responsible institutions must develop sound technological assistance for instructional programs which will protect the public from investing in gadgetry of little educational significance.

There are kindergartens for five-year-olds in slightly more than half of the states now. Several states which do not yet allow or provide public support for kindergarten are passing legislation enabling it or making it mandatory. Beginning with the fall term of 1969, all handicapped children who might benefit from an educational program from the age of two must be provided such services by the local school district in the state of Connecticut. Similar legislation is pending in the state of New York. Our knowledge is woefully inadequate as to the relevant processes and programs which will benefit preschool handicapped children. Yet, the responsibility and obligation has been assigned to local school districts to service the

needs of these children. To whom, to what institution, to what source will they turn for sound and proven models to implement?

In addition, other organizations are advocating increased investment in early childhood education. The Educational Policies Commission of the National Education Association (1960) maintains that "all children should have the opportunity to go to school at public expense beginning at the age of four."

The Research and Policy Committee of the Committee for Economic Development (July, 1968) stated:

> "We believe that early schooling is probably desirable for all children, that it is a necessity for the children of the culturally disadvantaged areas. We, therefore, recommend extensive experimental activity in preschooling, not only in the substance and process of instruction but also in organization, administration, and finance. We urge the establishment of both public and private nursery schools, especially in the neighborhoods of the disadvantaged."

These are but a few of the trends and events which point to the critical period of initiative facing early childhood education. Not only have we the residual problems of the past urgently demanding solution, but the problems of the present and future with which we must contend.

Persistent Problems

The major problems which quickly became apparent in 1965 have not been resolved, nor do solutions appear to be quickly available if we continue our present fragmented and piecemeal approaches to solutions. In essence,

the decision to mount a massive preprimary educational program for the disadvantaged highlighted our woefully inadequate resources to meet the challenge.

(1) Inadequate Knowledge of Processes Underlying Development. Despite the knowledge and evidence concerning the importance of the early years for developing competency, knowledge concerning the relevant underlying processes was lacking. Such information is essential for developing sound educational intervention. It must be remembered that only four years had passed since Hunt's compilation of the diverse evidence supporting the effects of environmental conditions upon intellectual functioning. In the main, his evidence was scientifically circumstantial, as was Bloom's 1964 work. Given the validity of their syntheses, major efforts remain to be undertaken to fill the knowledge gaps concerning the developmental processes underlying intellectual functioning and the supporting systems necessary to nurture growth. By 1965, hardly enough time had elapsed to identify the specific relevant variables, to understand the underlying processes, and to translate this information into tried and proven educational models.

An essential first priority in the months and years ahead must be a concentrated effort to understand the underlying processes of early development as they relate to individual competency. Production of such knowledge can best be accomplished in the context of a planned and systematic attack

designed to serve the development of early educational models. The power of such a commitment lies in the explicit continuous feedback which a mission-oriented system can marshal. There can be no equivocation on the importance and necessity of extending the relevant knowledge base.

Guidance for deploying our effort and resources to the most relevant areas of investigation must come from systematic synthesis and integration of present knowledge with a sound conceptualization of tactics to be employed in a program of basic research.

(2) Poor Program Definition and Specification. The social urgency of the problems of disadvantaged children led us to implementation of programs long before the data were in to support their efficacy. Programs were initiated on the assumption that anything was better than nothing at all. Consequently, these endeavors reflected the full gamut of philosophy, content and methods without a solid foundation of fact or proven results. The criticism is not of program diversity. This strategy is necessary to meet the needs of a heterogeneous population. Such pluralism, however, implies carefully planned strategies and well documented justification for the total program. In most instances, heterogeneity of programs was the result of little knowledge of the best that was available and without readily available guidance or models to follow.

The essential contribution of these programs was to educate the nation as to the importance of the early years and rally opinion in support

of the possibility of beneficial results. However, such a laissez-faire philosophy toward implementation and program development led to such heterogeniety that sound evaluation was impossible. Reports of benefits were in the main impressionistic, hardly a sound basis for developing future policy. The inadequacy of programs and implementation points up to the necessity of an integrated effort to provide early educational models appropriate for implementation in a variety of contexts.

An iterative strategy must be employed which will provide early educational models based on the best information available at that point in time. The strategy must include means to incorporate new knowledge being produced. This implies program pluralism and responsible flexibility based upon a comprehensive integrated system of research and development.

(3) Inadequately Trained Staff and Training Capabilities. Program quality is in part a function of the personnel who must implement the instruction. In 1965, as in 1969, the story was too few personnel available with adequate training, nonexistent preservice training capabilities, and inadequate inservice training commitment or support. Discussion of these issues and some modest recommendations have been made elsewhere (Miller, 1969).

In summary, it was pointed out in that document that a crisis in staffing exists now. The immediate problem of providing adults to man

classrooms was met by using inadequately trained personnel. The need for appropriate inservice training and using innovative models was advocated in that paper. Both preservice and inservice capabilities have lagged far behind demonstrated need. Those training programs which are being developed reflect little understanding or conversance with available substantive knowledge, the children or needs to be served. The meager resources available for development of training programs appear to be distributed on the basis of inappropriate criteria.

Preservice and inservice training must be closely related to the development of sound program models. Demonstration facilities must be available where these models can be shown in operation. Inservice training must be available in the reality context of the work situation. New patterns of career development utilizing untapped resources, such as the community colleges, must be employed if this problem is to move toward solution. Without a unifying force which can demonstrate the power of an integrated national program, the outlook in this area appears dim indeed.

(4) Nonexistent or Inappropriate Objectives. A great deal of confusion existed in 1965 as to the objectives of the educational program for Head Start children. The same condition exists for children from other environments, but we will make the point specifically with programs targeted for the disadvantaged. Confusion over objectives has not yet been resolved

and, unfortunately, the confusion has a profound effect upon the development of adequate instructional programs, as well as preservice and in-service training programs for classroom personnel. The confusion apparently involves priority of objectives as well as their appropriateness. Many have seen the federally sponsored preprimary educational efforts as directed toward eradicating the social problem of poverty. Specifically, the prime objective of the progrm was to offer more job opportunities for the poor. Others have seen the programs as a means towards providing political leverage and power for the disadvantaged.

While these objectives may be laudable from a social viewpoint, they are neither necessary nor sufficient for early childhood educational programs. While specific program objectives may vary from individual to individual and from group to group, the focus in early childhood education must be upon the child and those immediate support systems and conditions which will optimize the development of the individual and provide the social competencies necessary for responsible environmental mastery. Clearly, such a statement needs greater explication and refinement to establish clear set priorities and criteria by which attainment of specific objectives can be judged. However, the child and his immediate ecology is clearly the orientation, pointing to the primary target of responsibility, an orientation which is necessary if we are to be serious about the mission.

The problem of objectives becomes more critical as we move to specific program models. Without a clear statement of objectives, instruction, methods and techniques take on a smorgasbord flavor. With untrained classroom personnel and a heavy reliance on paraprofessionals, classroom experiences are meager in content and the emphasis soon degenerates to issues of classroom control and behavior management.

Clear statement of overall objectives, as well as specific objectives, are important for instructional continuity and progress. Clear statements are fundamental to the development of early childhood educational models which are appropriate for implementation in many settings. It is essential for evaluation.

(5) Inadequate Evaluation and Instrumentation. The problems of evaluation and instrumentation are closely associated with those discussed previously. Three needs can be readily identified as essential to the field and high on the list of priorities for systematic development.

(a) Instrumentation. The field is in desperate need of adequate instruments to measure a wide range of child performance behavior. These instruments should be so designed and constructed that they will provide diagnostic information prior to educational intervention, be usable for assessing progress, and adequate for reliable measurement of attainment of terminal behaviors. They should be carefully constructed to provide information concerning the processes of development.

(b) Systematic ecological observation. Program effects should be observed throughout the child's ecology. Changes in that ecology, particularly in the support systems which nurture and encourage his continued development, should be systematically recorded as an index of program effectiveness.

(c) Theoretical models of change. We need a calculus of change which will provide reliable means of assessing progress over time. There is a strong possibility that the lack of results in some of our interventions are intrinsic to our means of analysis and errors of measurement rather than lack of efficacy in the educational intervention itself. Measuring and assessing change is a critical problem in the area of evaluation.

These three major areas touch at the output end of the evaluation continuum while little attention has been placed at the input end. Essential to evaluation is the development of criteria. In terms of child performance, development of adequate behavior criteria was implied. However, nothing has been mentioned concerning cost effectiveness, social impact, and other areas of concern which are particularly important for decision makers prior to installation of programs. It is my firm conviction that these problems can best be attacked and resolved within the context of a comprehensive program which mandates this line of inquiry and development.

(6) Indecisive Funding and Support--The Federal Role. No one would construe the federal role in education as one simply of defining need and

initiating programs for which the state and local authorities in due course would take responsibility. Yet, even a casual reading of the record would lend substance to such an interpretation. No one would seriously contend that the role is simply to turn back funds to the states which the federal government could more efficiently collect. Yet, there is evidence to support such a definition. Few would argue that the role of the federal government is to assume responsibility for control of education in the nation. Yet, some would make the case that we are well along on such a course. It is precisely the ambiguity regarding the federal role, however, which gives rise to indecisiveness concerning funding, mechanisms for support and those functions and institutions appropriate for reaching national objectives and priorities.

The field of early childhood education, perhaps because of its dependence upon federal support at this point in its development, has been particularly vulnerable to federal capriciousness. Head Start is a notable example of the problem. Funding schedules have been constantly violated causing havoc at the program level. Recruitment and retention of high quality staff has been impossible under conditions where promises made were broken because funding schedules were not met. Research and development work cannot be divided into neat annual packages conforming to federal bookkeeping procedures which has militated against significant achievement and break through. A fair test of the efficacy of educational

programs cannot be made when premature and inappropriate evaluation is imposed. These nagging and persistent problems may well be alleviated when the role of the federal government is clearly defined and it assumes the responsibilities which can only be met on a national level.

Many of the difficulties and criticisms of the federal role in education appear to revolve around federal activity at the implementation level, a state or local prerogative. Head Start has experienced this problem, as have various titles of the Elementary and Secondary Education Act. Direct support of programs at the implementation level will always raise the question of control and responsibility.

Unfortunately, the federal record of support of the role which it so clearly must assume--production of knowledge and systematic translation of that knowledge into soundly tested programs--is meager and spotty. It has been estimated that approximately one-half of one per cent of the federal expenditures on education have gone into this specific national responsibility. Krathwohl (1969) has compared this record with the 3 per cent investment in research and development on the part of other sectors of the economy. Less than one-twentieth of that one-half of one per cent has been earmarked for the field of early childhood education where it is most critically needed. Tragically, this condition persists despite declarations on the part of the present administration and the previous one to the effect that interests of children under six were a first national priority.

Meager and unreliable federal involvement in its prime educational function will continue the fragmented efforts toward solution of the most critical problems of education in general, and early childhood education specifically.

If we accept the doctrine of state and local control over and provision of educational services (implementation level), the role of the federal government in education must be to provide the means of developing comprehensive exemplary programs in targeted educational areas of need. Specifically in the field of early childhood education, the federal government must support a comprehensive and integrated program organized to produce and translate knowledge into a variety of testable early educational models, demonstrate their efficacy, and provide advisory services for their installation, maintenance, and evaluation. This program of exemplary leadership can only be implemented at the national level with major support coming from the federal government.

A Constructive Step

Krathwohl (1969) advocated in his AERA Presidential Speech the establishment of a series of national institutes for education focussed on significant educational problem areas. No where in the field of education is the need more essential, the instrumentality and means more available, nor the time more critical than early childhood. I propose the development of a National Institute on Early Childhood Education. The National

Laboratory would be the substantive core for the Institute. Clearly, we must bring order and a concentrated effort to a field which has such high social priority. Early childhood education, so new to public support, offers a golden opportunity to establish fresh patterns of attacking educational problems. We must develop institutions which are anticipatory and future oriented rather than merely respondent if we are to make significant progress on educational problems of national scope. This institute would be the focal point of the national commitment to early childhood. Autonomous in organization, its major function would be to develop the national perspective through its integrated program and activities.

I see such an institute as having five functional capacities: four of which require direct substantive action. They are: (1) A research capacity which would be charged with the production of knowledge and applied experimentation. The focussed research mission would be the exploration and understanding of the developmental processes underlying individual competency. Applied experimentation would be concerned with altering these processes where desirable through educational intervention. (2) A development capacity which would translate knowledge and results of experimentatio into effective comprehensive models for controlled application. (3) A diffusion and installation capacity which would provide the capability to rapidly move developed early educational models into field practice. The major means would be through demonstration centers and advisory services.

(4) A resources production capacity which would include the operational and support capabilities necessary for the previous three functions. It would include information retireval and dissemination, media production, communications, development of support technology and a variety of storage systems.

The fifth functional capacity is the key to a focussed national effort in early childhood education. It is the integrative function. All of the action elements of the Institute, whether they be university based, field based, in the private sector or centrally located, can go on in isolation as has been the case thus far. What we desperately need is the power to integrate all of these efforts on some rational and data oriented basis. The integrative function includes the capability to analyze the needs of the field and to conceptualize these needs into alternative strategies for problem solution. Essential is the ability to integrate existing knowledge and synthesize this knowledge for potential development and application. The ability to establish institutional policy in light of determined needs, engage in systematic planning for appropriate allocation of productive resources and evaluation of effectiveness are all central to functional integration.

And Now

Boundaries

It is interesting to note in the discussions surrounding man's recent landing on the moon a number of comments which downgraded the achievement as simply a technological and engineering feat of little scientific moment. However, the knowledge base accumulated over hundreds of years, much of it attributable to scientific exploration and discovery, was indispensible to the "technological" feat. In turn, because of the accomplishmen the laser beam reflector, the seismograph and the solar wind experiment have contributed materially to our scientific knowledge of the moon, our own planet, and perhaps the development of our entire solar system. The 80 pounds of rocks which were returned are eagerly being sought to add scientific knowledge about the origins of the moon and its geological make-up. The status jockeying over the relative importance of science and technology seems a bit absurd.

At least two important lessons should be apparent. First, the accumulated time necessary for development of an adequate knowledge base to undergird such an achievement is matched only by the breadth and depth of essential knowledge which must be gained. Secondly, the exquisite interdependence and implicit bilateral feedback between technological accomplishment and scientific achievement provides an excellent example

to emulate. The question is not who is the master and who is the servant, but how can the two be harnessed to serve each other.

The overriding objective of the National Laboratory is to develop comprehensive early childhood education models based upon existing evidence concerning the processes underlying the development of competence, including means for self correction consistent with relevant new knowledge, and appropriate for installation under a variety of conditions. This objective embodies a recognition of the sine qua non of interdependence between the technological and scientific. Further, it requires that model specifications include provision for up-date mandating continuous two-way feedback. It also provides the necessary pluralism appropriate to the context of application. It is my contention that such an objective can only be achieved with federal support at the level of a national effort, that it is consistent with the role the federal government must play in education and a first order priority of need in the field of early childhood education.

It is in light of this major objective that the terms "comprehensive" and "integrated" used throughout this paper should be given substantive meaning. By comprehensive program, I mean one which includes all those necessary functions to move knowledge from need through discovery, to field use and application. In the context of the overarching objective of the National Laboratory, a comprehensive program means (1) discovery of the

processes and their parameters underlying the development of competency in early childhood through a focussed research effort, (2) describing the effect of educational intervention on changing the parameters of these processes under applied experimentation, (3) translating this knowledge and other which is relevant into early childhood educational models for controlled testing, (4) testing and demonstrating developed models and the procedures for their implementation, (5) providing advisory services for on-line installation, and (6) maintaining the support systems and services necessary for the preceding functions.

An integrated program is defined by three major qualities: (1) it is conceptually logical; the needs--means--ends are apparent, intrinsically sound and appropriate to the source of support and the field of endeavor, (2) the program is internally consistent, reflecting consonancy of goals and objectives, functional processes and structural organization, and (3) there is organizational integrity; providing autonomous governance, administrative responsibility and public accountability.

As the Laboratory moves to a comprehensive and integrated program, several functional capabilities require immediate attention and priority for development. Essential to attainment of the Laboratory's objectives is the ability to attain productive equilibrium between functional integration on the one hand and structural differentiation on the other. The substantive effort required for program integrative capacity is a first

priority to which we must address ourselves. It is in the context of priority and phasing that I would like to discuss the functional organization necessary for a comprehensive and integrated program rather than by means of a detailed listing of these elements. Reference to Figure 1 provides a road map for this discussion.

Program Integration Capacity

Needs Analysis--Conceptualization. Fundamental to a comprehensive program is the ability to provide an analysis of need and on the basis of this analysis to conceptualize alternative strategies for solving existing and potential problems. The first order of business in such an endeavor is to produce educational and social status data, state of the art analyses over the range of problems of concern to the program and such other summaries of current policy, etc., as will provide an adequate foundation for planning and policy determination. Initially, this work is present and past oriented but becomes future oriented when alternate strategies are conceived for solution of present and future problems.

Any one who has recently engaged in preparing a state of the art paper in early childhood has come face to face with the lack of status data on current practice. We have little knowledge of the extent of early childhood programs, location, productivity and content of training programs, to say nothing concerning quality of these operations. We know precious

FUNCTIONAL ORGANIZATION--PHASE I

NATIONAL LABORATORY ON EARLY CHILDHOOD

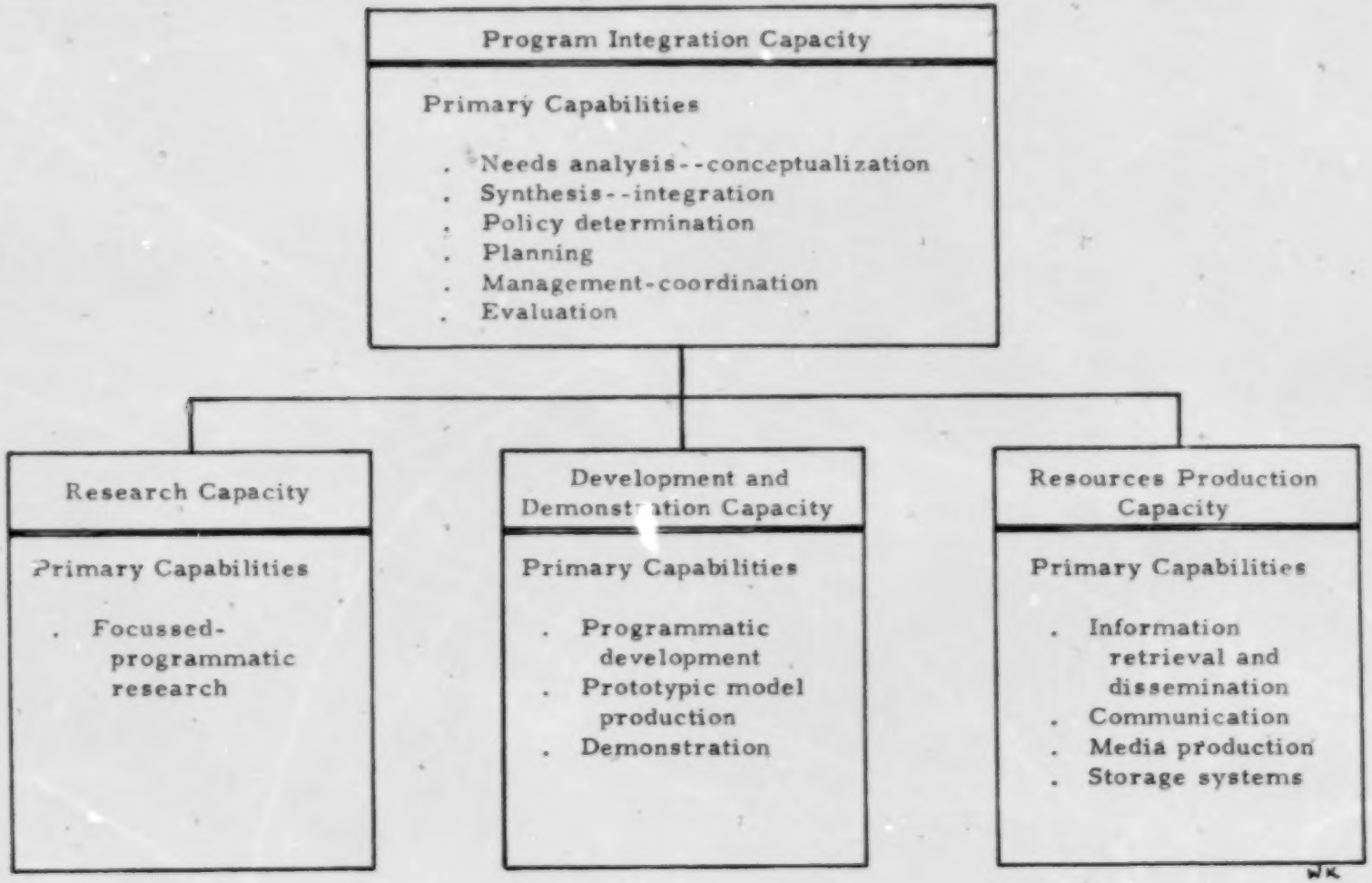


Figure 1

little about patterns of support, qualifications of personnel, staffing patterns or need. These kinds of data are essential for future projection, yet they are practically nonexistent.

Through our resource production program we will make a concerted effort to gather pertinent data from the existing, but scattered sources, and begin systematic collection of pertinent material to the field. The substantive scholarly work necessary for projection and conceptualization requires the assistance of recognized authorities in specialized fields of endeavor. We will develop a working environment, the necessary technical support and resources, which should be attractive to productive scholars. We will implement a visiting scholar program where investigators will join the professional staff at the Laboratory headquarters for periods of time to concentrate on and become immersed in a problem area of need.

Synthesis--Integration. Closely related to the previous capability, but differentiated in terms of use and source material, this capability is directed toward assays of existing knowledge rather than existing practice or status and distilling inferences and leads for potential application. Targeted reviews of research associated with the processes underlying the development of competence are badly needed for research direction, as well as substantive input to the evaluation program and development of

instruments. In addition to the input to research planning, such contributions would form the basic foundation for a strong evaluative capability.

The visiting scholar program would be used to support regular members of the professional staff as previously outlined and provide breadth and depth of scholarship. In addition, a program of fellowships for younger and promising investigators will be instituted supporting both capabilities. These fellows will have the opportunity to work with senior men who might not otherwise be available. The regular professional staff, visiting scholars and fellows will form a continuing community and focal point for research and professional leadership in the field. Periodic substantive seminars will provide access for professionals in the field.

Figure 2 details the allocation of functions structurally in the program. Analysis--Conceptualization and Synthesis--Integration provide the substantive foundation for planning and evaluation and are, therefore, assigned to that office to foster careful integration of the work. In our effort to broaden the substantive competence and integrated capacity of the Laboratory, these will form primary targets for immediate staffing.

Program Planning. The overall planning strategies which a comprehensive and integrated program must take are iterative in nature. The mutually exclusive conditions of inadequate knowledge of the processes underlying the development of competence and the demand for installation of early childhood education programs force the development of models

ALLOCATION OF FUNCTIONS--PHASE I

NATIONAL LABORATORY ON EARLY CHILDHOOD

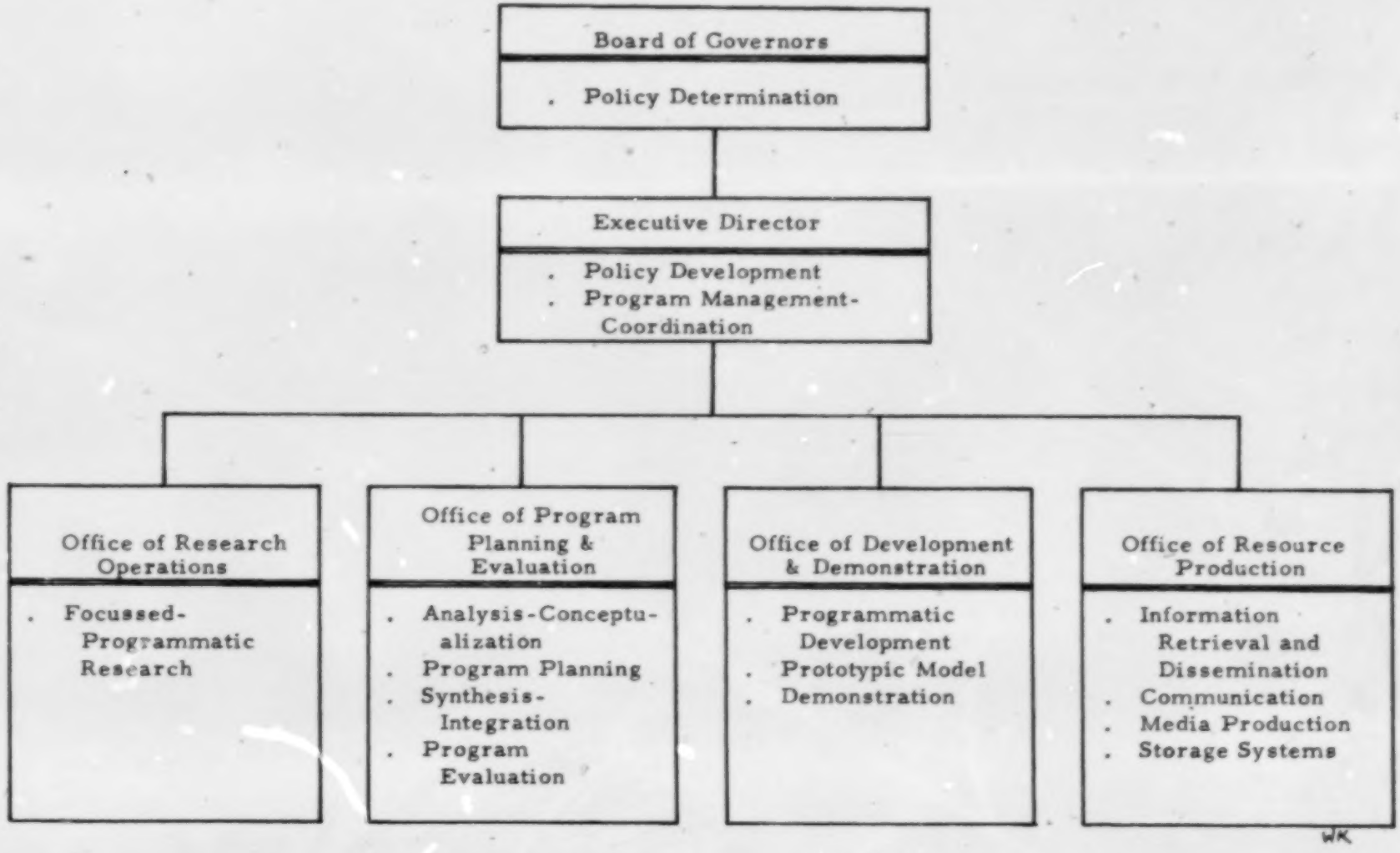


Figure 2

which are the best approximations conceivable. Work to improve the approximations must continue simultaneously. Thus, the planning staff is faced with the inevitability of change but also the problems of accommodating and making use of change productively. Planning must be sensitive to the course of work within the program, as well as to external events, in order to provide the articulation of resources necessary for productivity. Obviously, planning is not an isolated or disjunctive activity, but must be totally immersed in the program as a central integrative function.

Program Evaluation. Central to the development of early childhood educational models are specifications for evaluation. These include child performance, effectiveness of delivery systems, cost effectiveness evaluation, social impact effect, to name but a few. These problems require the development of new evaluative strategies as well as collation of diverse but applicable methods to the specific problems enumerated. In addition to concern regarding the productive output of the Laboratory, evaluation must be concerned with monitoring the internal processes of the program. Of particular concern is the development of quality criteria for a number of different functions which cannot be judged by the same set of referents. Thus, evaluation takes on a set of substantive tasks over and above a simple "watch dog" role. In essence, a comprehensive evaluation capability is the hand maiden of planning and essential to the integrative function.

Policy Determination. From an organizational standpoint, constituting the Board of Governors is the first order of business. This Board will assume legal responsibilities for the program, take responsibility for its support and set policy consistent with mission objectives and the functions of the Laboratory. They will be assisted in their responsibilities by a Science Advisory Council and a Professional and Lay Advisory Council. The former will periodically review the research efforts for quality and relevance to the mission. The latter will take prime responsibility for advising the Board of Governors on diffusion and installation operations and the broader aspects of social and field needs. The Board of Governors will be made up of leaders from the professional, business and labor communities who have records of responsible decision making experience.

Research Capacity

The component centers of the National Laboratory represent a focussed programmatic research effort engaged in substantive study of the processes and their parameters underlying the development of competency in early childhood and describing the effect of educational intervention in changing the parameters of these processes under applied experimentation. Figure 3 indicates the administrative organization of this function as a part of the National Laboratory. It also shows the relationship of the leadership of the components to policy development and program coordination.

ADMINISTRATIVE ORGANIZATION--PHASE I

NATIONAL LABORATORY ON EARLY CHILDHOOD

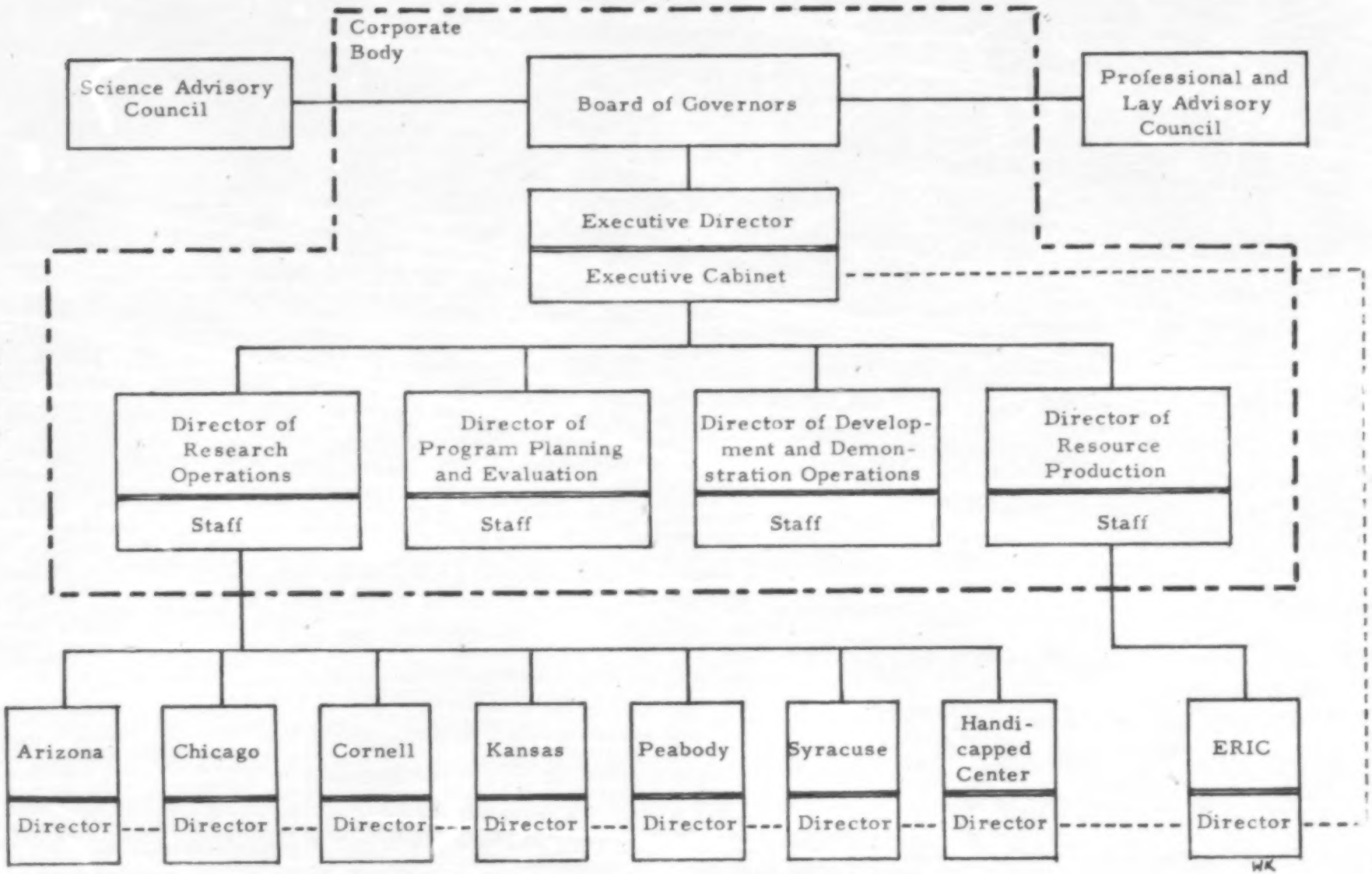


Figure 3

Ultimately, the focussed programmatic research capability will have to be augmented to provide the necessary flexibility required in a comprehensive program. The carefully planned research program implied in a programmatic approach is not always amenable to interruption for the production of specific knowledge. Yet, in a comprehensive effort, a particular question at the project level may need immediate attention in order that the substantive work can proceed. We expect to develop a solicited project capability in due course of time (Figure 4).

Development and Demonstration

A major commitment during the first phase of reorganization is the development of the Laboratory's first prototypic early childhood educational model for controlled testing and demonstration. The centralized activities require staff to integrate the model elements produced by the component centers and other sources. Time and space will not permit delineation of the model specifications at this point. Suffice it to say that the general specifications call for specific knowledge of process, as well as the soft ware and usual support materials and information. In order that the major centralized work of the Laboratory can proceed, it is essential that the team charged with this responsibility be recruited and organized immediately. Planning for the implementation of the demonstration function must proceed simultaneously.

FUNCTIONAL ORGANIZATION

NATIONAL LABORATORY ON EARLY CHILDHOOD

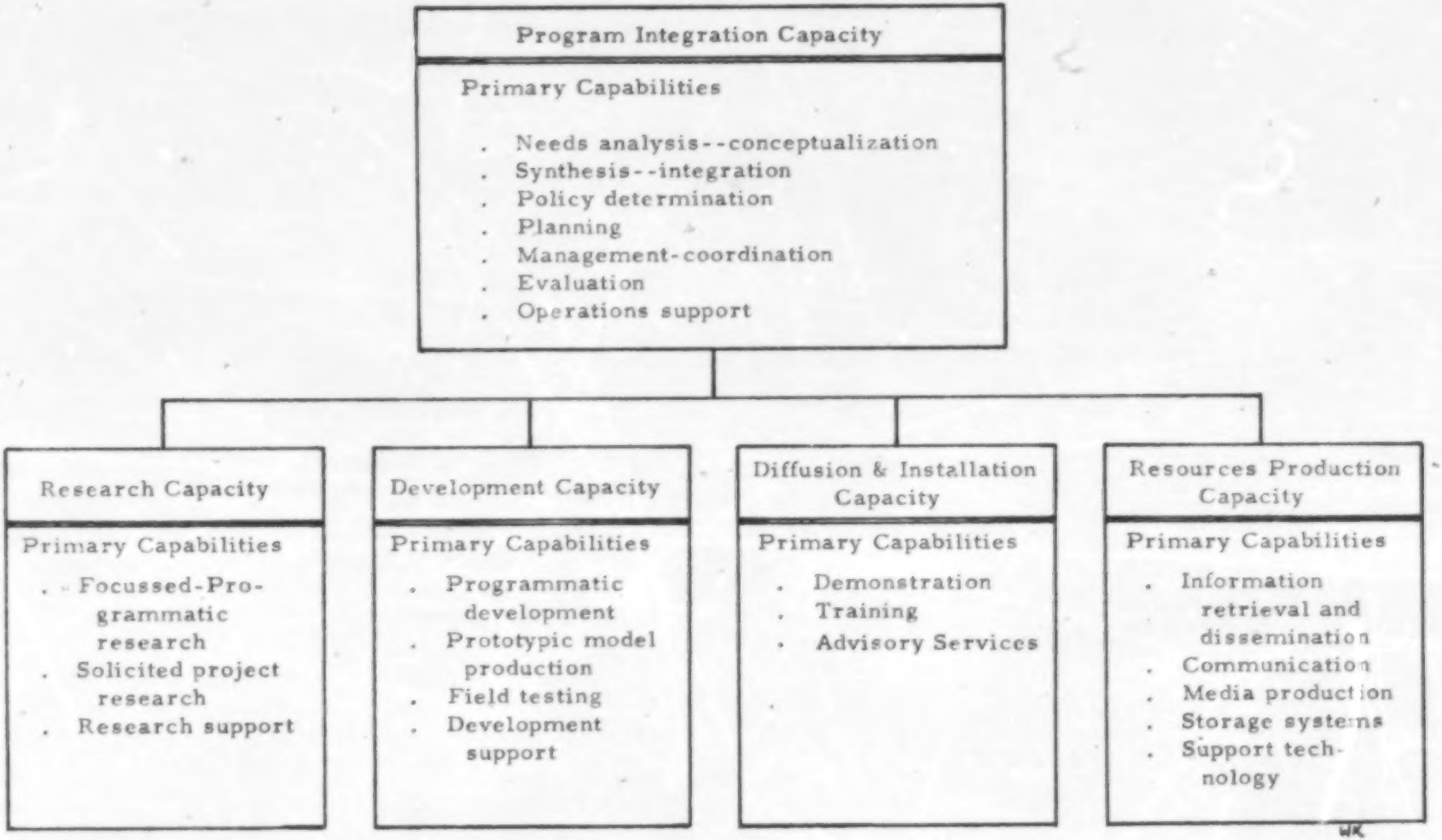


Figure 4

Reference to Figures 5 and 6 show structural differentiation of the development function and the diffusion and installation function after the first phase has been accomplished. Differentiation of these capacities is in keeping with the timing of the development of the comprehensive models. The additional capabilities for training and advisory services for installation have previously been discussed in the paper on staffing crisis (Miller, 1969). There, I advocated that the field make a much heavier investment in the community college for preservice training. Such involvement could provide more adequate career development programs and the mechanism for differentiating levels of competency. In addition, I proposed the creation of a minimum of six regional teacher-demonstration centers which would be the main diffusion instrumentality of the national comprehensive and integrated program herein discussed. These centers would demonstrate the models eminating from the research and development effort and would serve as headquarters for inservice helping teams. Sites for these centers would be chosen on the basis of direct access to the environment containing the on-line programs being served. The inservice helping teams would be charged with the responsibility of outreach, advising local systems on installation procedures.

Resources Production Capacity

To undergird the entire program, information storage and retrieval, media production, technological development, and various data banks are

ALLOCATION OF FUNCTIONS

NATIONAL LABORATORY ON EARLY CHILDHOOD

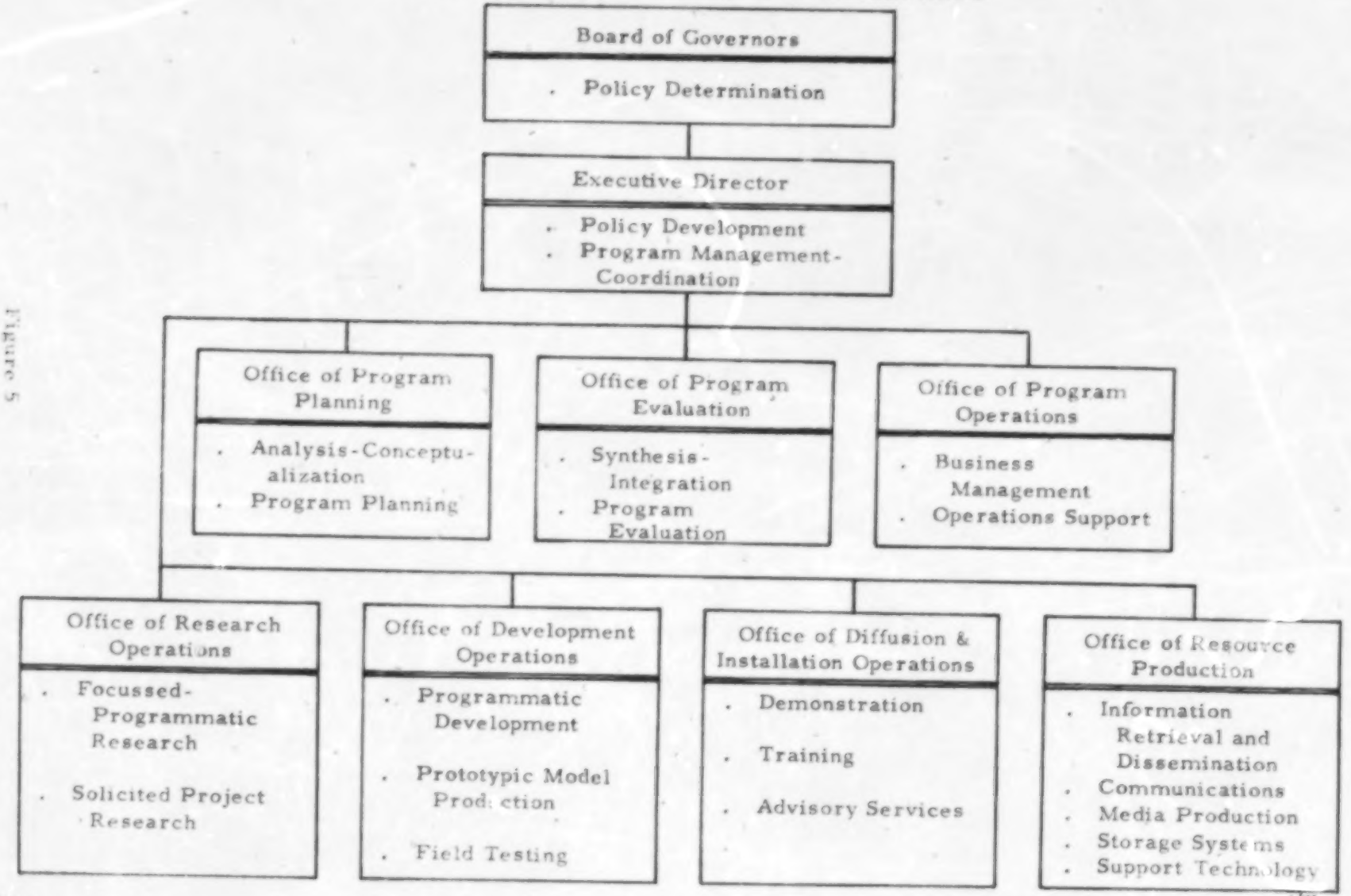
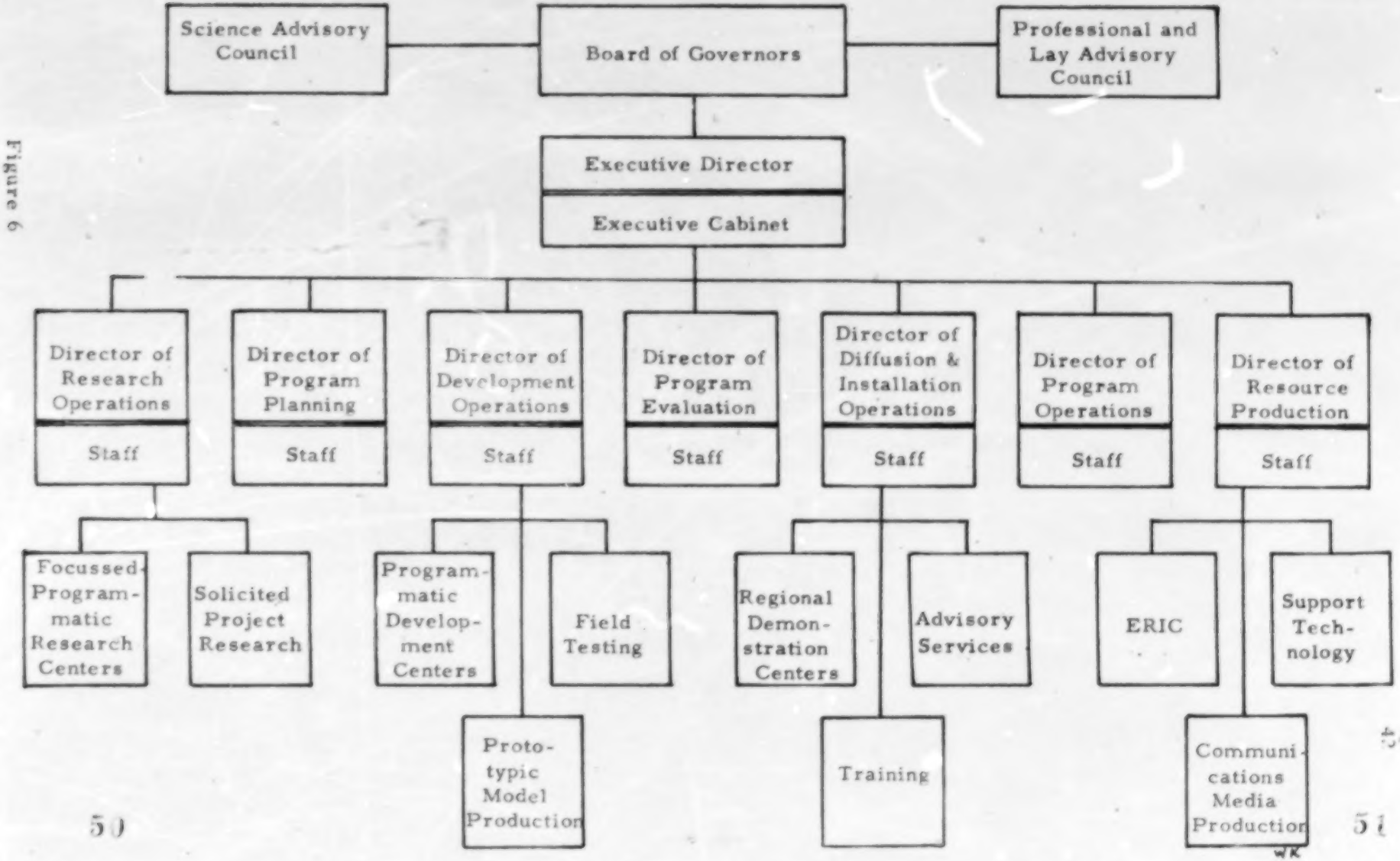


Figure 5

Figure 6

ADMINISTRATIVE ORGANIZATION

NATIONAL LABORATORY ON EARLY CHILDHOOD



necessary. ERIC presently provides the capability for information retrieval and storage and, to a limited degree, dissemination of information.

A full range of media production capabilities are envisioned as necessary to support the work of the program. Mass production of films, records, manuals, etc., is not the work of the program, however. Rather, it will be limited to initial production and development which must be an integral part of the on-going operation. Knowledge of program requirements and the substantive process must be an integral part of the production staff's repertoire.

The development of a communications network, which serves not only the program but the field as well, is essential to the success of the Laboratory. This capability will include editorial and writing skills which can translate information into appropriate form for a variety of audiences. The back-up support of media specialists is an intrinsic part of this capability.

Can We Wait?

The detail of the issues which a comprehensive and integrated program raise and with which it must deal are the subject of continued study. Here, I have tried to highlight the persistent problems of early childhood education in an historical context. I have tried to establish the rationale and dimensions of a national focussed effort. Our raison d'etre is to help all young children in our society to achieve competence and self assurance. The decade of the 1960's gave us a new faith in our ability to prevail. It kindled our hope for the future. The decade of the 1970's awaits. We must take the initiative.

". . . let us begin."